

## **Appendix C**

### **Comment and Response Summary**

**Appendix C**  
**Thunderhead PODs 1, 2, and 3**  
**Scoping Issues Summary**

The scoping issues identified in this table are those issues that are:

- Significant and addressed in this EA. The section numbers where the issue is discussed is included in the table; or
- Insignificant, because they are either outside the scope of the Proposed Action; are already decided by law, regulation, Forest Plan, or other higher level decision; are irrelevant to the decision to be made; or are conjectural and not supported by scientific or factual evidence.

The source of each issue is identified, and the comment is summarized. The response provides information relevant to the scoping issue.

Source	Category	Comment	Response
Wyoming Business Council	General	Support the project as proposed currently	No response needed.
Wendell Funk	Scoping	Error in section number designation, Scoping Statement, page 2, paragraph 4, last line.	The planned header building would be located in NE SW Section 20, T43N/R71W.
Biodiversity Associates – Friends of the Bow	NEPA procedural	Discuss consistency with existing plans.	Management plan consistency is discussed in Section 1.5.3 <i>Management Plan Conformance</i> .
Biodiversity Associates – Friends of the Bow	Purpose and Need	The value of the supported biodiversity and habitat for many species exceeds royalties to federal government in the Purpose and Need statement.	The Purpose and Need for the proposed Action is discussed in Section 1.4 <i>Purpose and Need</i> . Grazing and oil and gas development have been determined to be appropriate uses under the TBNG LRMP. See Section 1.5.3 <i>Management Plan Conformance</i> .

Source	Category	Comment	Response
State of Wyoming Historic Preservation Office	Procedural	Discuss requirements for consultation.	Consultation for this EA was performed with the USFWS. The TBNG conducted informal consultation with the USFWS with respect to biological resources. The TBNG conducted consultation with the State of Wyoming State Historic Preservation Office with respect to cultural resources.
Wendell Funk	Alternatives development	Consider alternative routes into PODs 2 and 3 that avoid or minimize crossings of FS-administered lands.	The consideration of alternative routes into Thunderhead PODs 2 and 3 is discussed in Section 2.6 <i>Alternatives Considered but not Analyzed</i> .
Wendell Funk	Alternatives development	Consider use of helicopters to provide transportation of personnel and equipment to construct and maintain header facilities.	The ROD issued for the PRB O&G FEIS (BLM, 2003) allows for surface transportation of personnel and equipment to construct and maintain facilities. Furthermore, consideration of the use of helicopters for transportation is discussed in Section 2.6 <i>Alternatives Considered but not Analyzed</i> .
Biodiversity Associates – Friends of the Bow	Alternatives development	<p>The “EIS” must examine and analyze a reasonable range of alternatives:</p> <ul style="list-style-type: none"> <li>• No activities within one mile of any ranked species by the Wyoming Natural Diversity Database or Wyoming Game and Fish Department</li> <li>• No ground disturbance within big game winter habitat, parturition areas, and migration routes</li> <li>• Drilling only in areas with existing and maintained roads</li> <li>• Designation of new research natural areas (RNAs)</li> </ul>	NEPA requires agencies to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of resources. (42 USC§4332(2)(E)(1988)).” Although alternatives must be considered in an EA, as they are in this EA, there is no requirement as to the scope of the alternatives. Alternatives considered but not discussed in detail are discussed in Section 2.6 <i>Alternatives Considered but not Analyzed</i> . The designation of new RNAs is out of the scope of this EA.

Source	Category	Comment	Response
Biodiversity Associates – Friends of the Bow  State of Wyoming Game & Fish Department	Alternatives development	<ul style="list-style-type: none"> <li>Mandatory reinjection of all produced water.</li> </ul>	The consideration of mandatory reinjection of produced water is discussed in Section 2.6 <i>Alternatives Considered but not Analyzed</i> .
Biodiversity Associates – Friends of the Bow  State of Wyoming Game & Fish Department	Cumulative impacts	Discuss cumulative impacts across the region from CBM development	Cumulative impacts to the region are discussed in the PRB O&G FEIS (BLM, 2003), to which this document is tiered. Cumulative impacts of the implementation of the Proposed Action and alternatives are addressed in Chapter 3.
Biodiversity Associates – Friends of the Bow	Geology	Identify and describe unstable or potentially mass-wasting slopes.	The terrain in and near the Project Area is nearly flat to low rolling hills and does not predispose itself to mass wasting.
Biodiversity Associates – Friends of the Bow	Geology, minerals, land use	Effects of underground and above-ground fires	The possibility of underground fires is discussed in Section 3.1.1.5. The possibility of above-ground fires is discussed in Section 3.8.8.6.
Wendell Funk	Soils	Discuss the effects of contamination of subsoil with “mud” chemicals and salt water.	Drilling fluids would contain no chemical additives that would contaminate the wellbore of a CBNG well. Drilling fluid or “mud” is composed of a mixture of water, native mud, and bentonite. Small amounts of biodegradable polymer additives or potassium chloride salts may be added to the mud to stabilize the clay. Additional information can be found in the PRB O&G FEIS (BLM, 2003), page 4-56.

<b>Source</b>	<b>Category</b>	<b>Comment</b>	<b>Response</b>
Biodiversity Associates – Friends of the Bow	Soils	Discuss the effects of surface disturbance on soils.	The effects of surface disturbance to soils are discussed in Section 3.2.2.2.
Biodiversity Associates – Friends of the Bow	Soils	Discuss the effects on soil permeability and water infiltration from high SAR water applied to soils.	High SAR waters would not be applied to soils as a result of Project implementation. Effects to soils are discussed in Section 3.2.2.2, and effects to surface water quality are discussed in Section 3.4.2.2.
Biodiversity Associates – Friends of the Bow	Soils	Discuss increased osmotic pressures in soils from excess salts in produced waters.	The CBNG produced water would not exhibit high levels of salts, as indicated by its EC measurements; therefore, there would be no impacts to soils with respect to excess salts. CBNG produced water quality is discussed in Sections 3.4.1.3, 3.4.1.4, and 3.4.2.2. The effects of discharged produced water to soils are discussed in Section 3.2.2.2.
Biodiversity Associates – Friends of the Bow	Soils	Identify and describe soil types.	Soil types are described and discussed in Section 3.2.1.
Biodiversity Associates – Friends of the Bow	Air quality	Discuss the effects of chemical emissions, spills, leaks, or dumping into the air.	The effects of emissions associated with CBNG development are discussed in Section 3.3.2.2.
Biodiversity Associates – Friends of the Bow	Air quality	Discuss increases in greenhouse gases.	The minor contributions of this project to the production and emission of greenhouse gases by the drilling and production of 32 wells are beyond the scope of this EA. Cumulative impacts to air quality are discussed in detail in the PRB O&G FEIS (BLM, 2003).
State of Wyoming Office of Federal Land Policy	Water resources	Address effects to aquatic resources.	Effects to aquatic resources are discussed in Sections 3.5.2.2, 3.6.2.2, and 3.7.2.2.

Source	Category	Comment	Response
State of Wyoming Game & Fish Department	Water resources	Lack of adequate analysis of CBM produced waters for potential water quantity and quality impacts.	The water quality from wells in the Little Thunder Creek Watershed and in the proximity to the Project Area would meet the required NPDES requirements for surface release. The requirements would include adequate analysis of water quality parameters and monitoring to ensure that release criteria are met.
State of Wyoming Game & Fish Department	Water resources	Request a water management plan to document impacts of CBM produced water discharges.	A water management plan was developed by Greystone in 2002 and is entitled <i>Hyrology Report</i> . It is available to the public through the TBNG and is referenced through discussions sections of this EA.
Biodiversity Associates – Friends of the Bow	Water resources	Discuss the effects of chemical emissions, spills, leaks, or dumping into soils (groundwater) and surface water.	Non-toxic drilling mud and small amounts of chemicals are used for cleaning and stabilizing of the well hole and should not have an impact on groundwater. Procedures to protect the surface would follow procedures to contain and clean leaks or spills described in the <i>Forest Service Water Conservation Practice Handbook</i> , Section 2509.25-99-01, 15.2, Standard 16e and the Conditions of Approval, General Stipulations, as contained in Appendix D of this EA.
Paul Stuart, LP #256	Surface water	Require operator to re-address previous water discharge location issues on FS allotments in the area prior to granting new permits to drill.	Lance is the current owner and operator of the leases associated with the proposed project. Water discharge locations were thoroughly evaluated during the July 2001 onsite inspections conducted by the USFS and Lance personnel. The evaluations considered the additional volumes of water that would result from drilling the proposed wells. Additional detail can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, page 10).

Source	Category	Comment	Response
Paul Stuart, LP #256	Surface water	Discharge produced water into defined or enhanced water courses with livestock crossings/culverts placed across water courses where needed; and monitor conditions of courses and crossings yearly.	Discharged water would be released in stable and well-defined channels, sometimes located a considerable distance downstream of the wells, to minimize stream erosion and enhance evaporation and infiltration processes. Produced water can be discharged only after National Pollution Discharge Elimination System (NPDES) permits are obtained. Part 1, Section 2a, No. 13 of the Statement of Basis for General NPDES Permits for Discharges from Coalbed Methane Wells addresses erosion control. The USFS onsite evaluation that occurred in July 2001 resulted in Conditions of Approval that specified locations for livestock crossings and culverts. The location of culverts and crossings and monitoring procedures are addressed in this EA in on Figure 2.3-1 and in Sections 2.3.8 and 2.5. Additional details can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, page 12).
Wendell Funk	Surface water	Discuss the impacts to water quantity/quality in the Little Thunder Reservoir	Impacts to the water quantity/quality in Little Thunder Reservoir are discussed in Section 3.4.3.1. Additional detail can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, page 16).
State of Wyoming Game & Fish Department	Surface water	Evaluate downstream enhancement projects where discharged produced water quality permits – some cost sharing for reservoirs by the Department is possible.	Beneficial uses for the CBNG produced water were considered and evaluated by the USFS and Lance during the July 2001 onsite inspections. Additional detail can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, pages 11, 15, 16). It is incumbent upon Lance to investigate possible cost sharing.

Source	Category	Comment	Response
State of Wyoming Department of Environmental Quality  State of Wyoming Office of Federal Land Policy	Surface water	Discuss NPDES requirements for surface discharge of CBM produced waters.	NPDES requirements are discussed in Sections 3.4.1.1 and 3.4.1.3.
State of Wyoming Department of Environmental Quality	Surface water	Discuss NPDES storm water permit requirements for construction activities that would disturb five or more acres.	NPDES storm water permit requirements are discussed in Section 3.4.1.1 and 3.4.1.2.
Biodiversity Associates – Friends of the Bow	Surface water	Discuss accelerated downstream erosion from increased flows.	The possibility of increased erosion resulting from the discharge of CBNG produced water on the surface is discussed in Section 3.4.2.2. Additional detail can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, page 15).
Biodiversity Associates – Friends of the Bow	Surface water	Discuss the effects of increased surface water flows; timing, magnitude, erosion, and channel morphology.	The effects of increased surface water flows are discussed in Section 3.4.2.2.
State of Wyoming Office of Federal Land Policy	Surface water	Discuss reservoir construction and operation	No new reservoirs would be constructed for the Thunderhead PODs. Operation of the reservoirs is discussed in Sections 3.4.1.4 and 3.4.3.1. Additional detail can be found in the publicly available <i>Hydrology Report</i> (Greystone, 2002, page 12).



<b>Source</b>	<b>Category</b>	<b>Comment</b>	<b>Response</b>
Biodiversity Associates – Friends of the Bow	Ground water	Decreases in the water table and possible reduced well capacities and adverse affects on wetlands due to diminished flows of seeps, and springs	<p>Possible impacts to the water table and well capacities are discussed in Section 3.4.2.2. Changes in well capacities are addressed under the conditions of the Water Well Agreement, which is contained in Appendix E.</p> <p>The absence of springs in the Project Area precludes impacts to wetlands resources from diminished spring flow. Wetlands are discussed in Section 3.5.2.2.</p>
State of Wyoming Office of Federal Land Policy	Ground water	Discuss the relocation of existing water wells impacted by CBM development	Possible impacts to water wells are discussed in Section 3.4.2.2. The BLM and USFS are aware that impacts to water wells could occur as a result of CBNG development. The agencies require that the CBNG operators offer the Water Well Agreement to affected surface landowners when developing federal minerals in order. A typical water well agreement is contained in Appendix E. It includes provisions that ensure a landowner’s access to water is restored in case of well impairment.
Paul Stuart, LP #256	Ground water	Require baseline data collection for stock water wells located within a one mile radius of any proposed production prior to issuance of permit for drilling of CBM well	Stock water wells in the vicinity of the Project Area are typically completed to the Wasatch or Lebo Member of the Fort Union formations. Water quality of these aquifers is described in Section 3.4.1.5.
Paul Stuart, LP #256	Ground water	Require a water well replacement guarantee with a 24-hour water-furnished clause prior to permitting	The USFS and BLM require that the CBNG operators offer a Water Well Agreement to affected surface landowners when developing federal minerals.
Biodiversity Associates – Friends of the Bow	Vegetation	Discuss the effects of surface disturbance on vegetation and micro-climates	The effects of surface disturbance to vegetation are discussed in Section 3.5.2.2. There are no identified micro-climates in the Project Area. The terrain, precipitation, and vegetation are fairly uniform throughout the area.

Source	Category	Comment	Response
Biodiversity Associates – Friends of the Bow	Vegetation	Identify and describe: <ul style="list-style-type: none"> <li>Plant species, wetlands, sand dunes, riparian, and other habitats</li> <li>T&amp;E listed, candidate, and proposed species</li> <li>Rare or uncommon plants (Barr’s milkvetch and second bladderpod)</li> </ul>	A general description of plant species and rangeland are addressed in Section 3.5.1.1. There are no sand dunes in the Project Area. Special status vegetative species are discussed in Section 3.7.1.
Wendell Funk	Vegetation	Discuss the protection of endangered or sensitive plant species	Endangered and sensitive plant species are discussed in Section 3.7.1.
Biodiversity Associates – Friends of the Bow	Vegetation	Discuss the use of defoliants and chemicals	Although the use of defoliants or other chemicals is not proposed, Lance has committed to control invasive or noxious weeds. Use of herbicides would be after the approval of the TBNG. See Appendix E, Site-Specific COAs.
Biodiversity Associates – Friends of the Bow	Wildlife	Identify and describe: <ul style="list-style-type: none"> <li>Black-tailed prairie dog colonies</li> <li>T&amp;E listed, candidate, and proposed species</li> <li>Invertebrate species</li> <li>Big game habitats</li> <li>Raptor habitats</li> <li>Sage grouse habitats</li> <li>Burrowing owl habitat</li> </ul>	Descriptions of the wildlife species and habitat that occur in and near the Project Area are included in Sections 3.6.1 and 3.7.1.
Wendell Funk	Wildlife	Discuss the protection of endangered or sensitive species	Endangered and sensitive species are protected by regulation. These species are discussed in Section 3.7.1.
Biodiversity Associates – Friends of the Bow	Wildlife	Discuss the effects on potential black-footed ferret habitat	Effects on black-footed ferrets are discussed in Section 3.7.2.2.

Source	Category	Comment	Response
Biodiversity Associates – Friends of the Bow	Wildlife	Discuss the effects of increased fencing and associated habitat fragmentation.	Metal fences would be installed around the wellhead covers and adjacent power panels. The covers are approximately four feet by four feet. The fences would not result in habitat fragmentation.
Biodiversity Associates – Friends of the Bow	Wildlife	Discuss increased wildlife mortality due to collisions.	Wildlife mortality is discussed in Section 3.6.2.2.
Biodiversity Associates – Friends of the Bow	Fish	Discuss the effects of high levels of salts on fish reproduction.	Low salinity levels in CBNG produced waters would not result in adverse effects to fish reproduction in the Little Thunder Reservoir.
Biodiversity Associates – Friends of the Bow	Fish	Effects of changing flows on habitat of native prairie fishes, amphibians, and aquatic invertebrates	The effects of changing flows upon habitat are discussed in Sections 3.6.1.7 and 3.6.2.2.
Biodiversity Associates – Friends of the Bow	Fish	Effects of water discharge on causing further decline and extirpation of native prairie fish	Native prairie fish do not exist in the Project Area's drainages.
Biodiversity Associates – Friends of the Bow	Land use	Identify and describe: <ul style="list-style-type: none"> <li>• Roadless areas</li> <li>• Potential wilderness</li> <li>• Potential ACECs</li> <li>• Potential National Monument</li> <li>• Potential Wild &amp; Scenic River</li> <li>• Undeveloped areas</li> <li>• Existing roads/trails</li> </ul>	Current uses of the land in and near the Project Area are described in Section 3.8.1. These types of designations (Research Natural Areas or RNAs) are outside of the scope of this document.  Existing roads and trails are discussed in Section 3.8.1.4.

Source	Category	Comment	Response
Biodiversity Associates – Friends of the Bow	Land use	Discuss effects of permanent and temporary roads and traffic: <ul style="list-style-type: none"> <li>• Poaching</li> <li>• ORV traffic</li> <li>• Habitat fragmentation</li> <li>• Pathway for noxious weed infestation</li> </ul>	Access to the Project Area would remain essentially the same because available road length within the area would not substantially change. In other words, construction of new roads would be offset by the reclamation of old roads. Vehicles are restricted to roads on the TBNG. The Project Area would not be more attractive to poachers or ORV enthusiasts as a result of access that is only slightly increased.  Noise impacts are discussed in Section 3.12.2.2. Noxious weeds are discussed in Sections 3.5.1.3 and 3.5.2.2.
Wendell Funk  State of Wyoming Office of Federal Land Policy	Cultural resources	Discuss effects to cultural resources.	Effects to cultural resources are described in Section 3.9.2.2.
Biodiversity Associates – Friends of the Bow	Cultural resources	Identify and describe cultural or historic sites	Cultural and historic sites are identified and described in Section 3.9.1.
Biodiversity Associates – Friends of the Bow	Visual resources	Identify and describe visual resources.	Visual resources are identified and described in Section 3.11.1.
Wendell Funk	Visual resources	Address the rationale for a VQO of “modification” for the area.	The VQO of “modification” is designated for the Project Area in the TBNG LRMP. The rationale for various designations throughout the TBNG is discussed in the TBNG LRMP and is outside the scope of this document.

<b>Source</b>	<b>Category</b>	<b>Comment</b>	<b>Response</b>
Biodiversity Associates – Friends of the Bow	Visual resources	Address the reduction in visual quality.	Changes to perceived scenic values are discussed in Section 3.11.2.2.
State of Wyoming Office of Federal Land Policy	Socio-economics	Address the effects the Proposed Action to socioeconomic conditions.	Socio-economic impacts are discussed in Section 3.10.2.2.
Wendell Funk	Socio-economics	Discuss compensation for damages to the estimated 175 acres and the removal of methane.	Long term disturbance to the area of the TBNG where the wells would be drilled and roads constructed is discussed in Section 2.3.7. The TBNG management prescription for the Project Area includes development of oil and gas resources as described in Section 1.5.3 <i>Management Plan Conformance</i> . Use of the surface to access the federal gas resources below the surface is not precluded by lease conditions or by the TBNG LRMP.
Biodiversity Associates – Friends of the Bow	Noise	Discuss the effects of CBM-related noise on sage grouse, passerine, and raptor reproduction	The effects of noise generated by CBNG development activities are discussed in Sections 3.6.2.2, 3.7.2.2, 3.8.2.2, and 3.12.2.2.
Biodiversity Associates – Friends of the Bow	Noise	Discuss the effects of habitat effectiveness (noise)	Noise impacts are discussed in Sections 3.6.2.2, 3.7.2.2, 3.8.2.2, and 3.12.2.2.